



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,818	03/22/2004	Masashi Hiroki	04190/LH	3706

1933 7590 03/16/2007  
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC  
220 Fifth Avenue  
16TH Floor  
NEW YORK, NY 10001-7708

EXAMINER
----------

MCCLENDON, SANZA L

ART UNIT	PAPER NUMBER
----------	--------------

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

5

## Office Action Summary

Application No.

10/806,818

Applicant(s)

HIROKI ET AL.

Examiner

Sanza L. McClendon

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 3-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 11-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1711

**DETAILED ACTION**

***Response to Amendment***

1. In response to the Amendment received on January 17, 2007, the examiner has carefully considered the amendments.

***Response to Arguments***

2. Applicant's arguments filed January 17, 2007 have been fully considered but they are not persuasive. Applicant appears to be arguing that Mantell et al is not anticipatory because Mantell et al does not require a polymerizable (solvent) in which a colorant is dispersed. The examiner, respectfully, disagrees. Mantell et al teaches an ink-jet ink composition comprising a polymerizable liquid epoxy or vinyl ether component. The examiner deems this liquid component (epoxy and especially vinyl ether) anticipates applicant's polymerizable solvent. Mantell et al teaches said colorant (pigments) may be in the form of a dispersion comprising a dispersant—see column 6, lines 55 to the end. And as stated in the rejection, mailed October 18, 2006, and in applicant's Remarks Mantell et al teaches the initiator can be kept separate from the curable ink composition—see column 10, lines 26-30. Additionally, Mantell et al teaches this allows for a more stable ink that will not polymerize in the print-head—see column 10, lines 51-53. Please see example 1 and 6. Applicant's instant claim 1, as written, is an ink composition comprising a polymerizable solvent and a color dispersed therein and a reaction liquid comprising a photo-acid generator. Said reaction liquid is prepared separately. Per example 6, Mantell et al teaches a composition of a photo-acid generator, a solvent, and a dispersant. Therefore, Mantell et al anticipates the preparation step of applicant's claims. Applicant's limitations "preserved" and "separately" are deemed anticipated by the reference because Mantell et al teaches preparing the polymerizable components and holding (preserving) until use, while additionally giving guidance for preparing the initiator separate from the polymerizable ink components, as well as, keeping them separate (preserving) until needed.

The remarks and arguments regarding the rejection of Ushirogouchi et al in view of Mantell et al are not persuasive. Applicant appears to be arguing that the combination of Ushirogouchi et al and Mantell et al does not result an ink composition, as instantly defined, having favorable shelf life properties, as seen in applicant's disclosure (Table 2). These arguments are not persuasive since the claim is silent with regards to having this property. Applicant's claim is limited to an ink composition comprising a color ink comprising a polymerizable solvent and a colorant dispersed therein and a reaction liquid containing a photo-acid generating compound, wherein

Art Unit: 1711

the color ink is prepared separately from the reaction liquid and the reaction liquid is prepared separately from the color ink and preserved separately until use. There is no requirement that the composition has a certain shelf life if any. The details from applicant's specification regarding results of applicant's cured ink from page 80 are moot since the claims are composition claims and not article of method claims. The claim does not require mixing the components or curing them. Regarding the arguments from page 4, lines 26 to page 5, line 1, these are also a concern of Mantell et al--see column 10, lines 57-58 to column 11, line 1. Therefore it is deemed that any person of ordinary skill in the art, at the time of the invention, appraised of Ushirogouchi et al and Mantell et al would have found it obvious to prepare and preserve the initiator (photo-acid generate) separately. The motivation would have been a reasonable expectation of preparing an ink composition that is stable in the presence of stray light as set forth by Mantell et al. The rejections of the claims are still pending--see below.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 11-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirogouchi et al (EP 1 357 159) in view of Mantell et al (EP 0 779 346).

Ushirogouchi et al teaches liquid inks for ink-jet applications. Said ink comprises a photo-acid generating agent that generates an acid upon exposure to irradiation, a coloring component, and at least one kind of polymerizable solvent that is polymerized in the presence of an acid. Said polymerizable solvent contains at least 50 parts by weight a compound having an alicyclic skeleton and/or an aliphatic skeleton having a viscosity of 50 mPa\*s or less and a boiling point of 150 OC or more under room temperature and atmospheric pressure. The ink composition should have a fluidity of at

Art Unit: 1711

least 30 cp. For this to be satisfied it is desirable to mix different kinds of polymerizable solvent monomers, such as compounds having the formulas (1) or (2), see page 19, which have a viscosity of about 1 to 30 cp, and compounds having the general formula (3), see page 20, which has a viscosity of between 20 to about 500 cp. The compounds disclosed by Ushirogouchi et al of general formulas (1), (2) and (3) appear to anticipate claims 11-14, 18-19, and 21-22, wherein formulas (1) - (3) read on the latter claims. The ratio of high viscosity to low viscosity polymerizable solvent is disclosed as being from 1:1 or 1:10--see page 20. This appears to read on claim 20. Said ink can further comprise oxetane compounds and vinyl ether compounds for improving transfer capabilities, adjusting viscosity, and improvement in the photocurable rate. Per sections [0048] through [0063], Ushirogouchi et al teach adding pigments and powdery materials to said polymerizable solvent. The particles size of said pigments and powder is disclosed as being from 0.1 to 0.3 microns. Additionally, basic compounds such as those found in section [0108] can be added to said ink composition to suppress corrosion in the ink jet head of a recording apparatus--see page 24. When printing on surfaces that exhibit strong basic character it is possible to suppress the effects of the generated acid on the substrate by adding a radically polymerizable compound, such as an (meth) acrylate, vinyl or styrene based compounds. Said acid generating compounds are found on pages 5-16, wherein at least some of those in claim 27 can be found. The method claim 28 can be found in the reference in said examples and throughout the disclosure.

Ushirogouchi et al does not expressly teach preparing and preserving the photo-acid generating compound as a separate solution. However, this is a known process step in the art of ink jet compositions and printing methods. Mantell et al teaches a similar ink composition comprising an liquid epoxy or vinyl ether component, a colorant, and a photo-acid generating onium salt, wherein said composition can further comprise pH adjusting agents, such as basic compounds, vinyl compounds. Mantell et al teaches that said photo-acid generating compound can be kept separate from the curable ink composition until the ink is ejected, which can be jetted onto the substrate prior to the ink composition. This ensure that the ink will not polymerize in the print-head regardless of the amount of stray light that reach the front face of the nozzles, thus maintaining the stability of the ink composition until use.

Ushirogouchi et al and Mantell et al are analogous art because they are from the same field of endeavor that is the art of cationically cured inkjet ink compositions. Therefore it would have been obvious for an artisan of ordinary skill in the art to prepare and separate the photo-acid generating compound from the polymerizable ink composition and its components as suggested by Mantell et al in ink compositions as taught by Ushirogouchi et

Art Unit: 1711

a1. The motivation would have been a reasonable expectation of obtaining a stable ink composition as taught by Mantell et al in the absence of evidence to the contrary.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 11-14, 17-18, and 23-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Mantell et al (EP 0 779 346).

Mantell et al teaches a ink composition comprising an liquid epoxy or vinyl ether component, a colorant, and a photo-acid generating onium salt, wherein said composition can further comprise pH adjusting agents, such as basic compounds, vinyl compounds. Mantell et al teaches that said photo-acid generating compound can be kept separate from the curable ink composition until the ink is ejected, which can be jetted onto the substrate prior to the ink composition. This ensure that the ink will not polymerize in the print-head regardless of the amount of stray light that reach the front face of the nozzles, thus maintaining the stability of the ink composition until use. Per example 1, Mantell et al teaches his polymerizable compound to be a mono-vinyl ether compound, which has a boiling point of 208 0C and a molecular weight of 132.16 in combination with a pigment dispersion, which is prepared separately from the photo-acid generating composition (see example 6). Example 6 is deemed to read on claim 28. Said photo-acid generating agents can be found on page 4, which appear to anticipate at least some of those found in claim 27. Said pigments are disclosed as having average particle sizes in range from 0.005 to 0.3 microns-see page 4. The teachings of the reference are deemed to anticipate the instantly claimed invention of the above listed claims.

*Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone

Art Unit: 1711

number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Sanza L. McClendon

Examiner

Art Unit 1711

SMC